DPM 5162

MATERIAL SAFETY DATA SHEET

F-4748

UNION CARBIDE

(Essentially similar to U.S. Department of Labor Form OSHA-20)

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I. PRODUCT IDENTIFICATION

PRODUCT Linde 5554, 5554HQ Aluminum Welding Wire

CHEMICAL NAME	NA	**SYNONYMS**	NA
FORMULA	American Welding Society Specification (AWS) A5, 10-69, ER5554 MIL-E-16054 & QQ-R-566, 5554	**CHEMICAL FAMILY**	NA
		MOLECULAR WEIGHT	NA

TRADE NAME Linde 5554, Linde 5554HQ

II. HAZARDOUS INGREDIENTS

A complex of elements composed of material shown below.
NOTE: In the table below, the symbol "<" means "less than" and "C" denotes "ceiling limit."

MATERIAL	Wt (%)	ACGIH (1979) TLV-TWA (Units)	MATERIAL	Wt (%)	ACGIH (1979) TLV-TWA (Units)
Aluminum	Balance	5 mg/m^3 (welding fume)	Zinc	<0.5	5 mg/m^3 (zinc oxide fume)
Copper	<0.5	0.2 mg/m^3 (copper fume)	Magnesium	< 4	10 mg/m^3 (magnesium oxide fume)
Iron	<0.5	5 mg/m^3 (iron oxide fume)	Titanium	<0.5	10 mg/m^3 (titanium dioxide)
Manganese & Compounds	< 2	C 5 mg/m^3 (as Mn)	Chromium	<0.5	0.05 mg/m^3 (chromates)
Silicon	<0.5	Use quartz formula			

III. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	NA	**FREEZING POINT**	NA	**SPECIFIC GRAVITY (H_2O = 1)**	NA
VAPOR PRESSURE AT 20°C.	NA	**VAPOR DENSITY (air = 1)**	NA	**SOLUBILITY IN WATER, % by wt.**	NA
PER CENT VOLATILES BY VOLUME	NA	**EVAPORATION RATE (Butyl Acetate = 1)**	NA		

APPEARANCE AND ODOR Solid Aluminum Welding Wire & Rods. All Sizes and Packages

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	NA	**AUTOIGNITION TEMPERATURE**	NA		
FLAMMABLE LIMITS IN AIR, % by volume	NA	**LOWER**	---	**UPPER**	---

EXTINGUISHING MEDIA Will not burn, use water to cool

SPECIAL FIRE FIGHTING PROCEDURES NA

UNUSUAL FIRE AND EXPLOSION HAZARDS None currently known

V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II - Welding fume (total particulate NOC) TWA = 5 mg/m^3

EFFECTS OF OVEREXPOSURE AND EMERGENCY AND FIRST AID PROCEDURES: — Electric arc welding may create one or more of the following health hazards:

Electric Shock and Burns — Deactivate power. Administer CPR as indicated. Cover burns with sterile dry dressings. Call a physician.

Radiant Energy — Can produce "flash" burns of eyes and skin. See a physician.

Gases, Fumes, Dusts — Overexposure can cause personal injury. Symptoms will vary according to the welding process and its application. Refer to the SPECIAL PRECAUTIONS in Section IX.

Noise — Overexposure can damage hearing. Wear hearing protection when noise is excessive.

A detailed description of the Health Hazards and their consequences may be found in Linde's free publication F52-529. You may obtain copies from your local supplier, or by writing to U.C.C. Linde Division, Communications Department, 270 Park Avenue, New York, N.Y. 10017.

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EMERGENCY PHONE NUMBER

IN CASE OF EMERGENCIES involving this material, further information is available at all times at this telephone number:

304: 744-3487

For routine information contact your local Linde Supplier.

VI. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
UNSTABLE	STABLE	None currently known
	X	

INCOMPATIBILITY (materials to avoid) None currently known

HAZARDOUS DECOMPOSITION PRODUCTS – When used in welding will vary with operating conditions. Reasonably expected decomposition products of normal operation from this welding material include oxides of materials in Section II. Among these are iron oxide, copper oxide, manganese oxide, silicon oxide, magnesium oxide and aluminum oxide. Other decomposition products of the welding operation include ozone and oxides of nitrogen. Also see Special Precautions IX.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur	None currently known
	X	

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

NA

WASTE DISPOSAL METHOD

Normal, environmentally acceptable, industrial waste disposal, land fill, burial, etc.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) – Depends on specific use, conditions, and location. Use adequate ventilation or personal respiratory protection. See Section IX and OSHA 29 CFR 1910.252 or ANSI Z49.1

VENTILATION	**LOCAL EXHAUST** – The need for local exhaust ventilation or airline respirators will depend upon the individual circumstances. See OSHA 29 CFR 1910.252 and ANSI Z49.1	**SPECIAL** – In confined areas, local exhaust is essential.
	MECHANICAL (general) – See ANSI Z49.1	**OTHER** – – –
PROTECTIVE GLOVES	Welding gloves recommended	**EYE PROTECTION** –Safety spectacles or goggles.
OTHER PROTECTIVE EQUIPMENT	– See ANSI Z49.1 – Welding helmet, flame retardant clothing recommended.	

IX. SPECIAL PRECAUTIONS

WELDING WARNINGS. Voltages may cause fatal shock. Arc rays may cause eye and skin burns. Welding may produce harmful fumes. Noise may damage hearing. Do not touch live electrical parts. Wear recommended eye, ear and body protection. Provide enough ventilation. Before use, refer to instruction literature for this product. For further SAFETY AND HEALTH information, refer to Linde's free publication F52-529 and to American National Standards Institute – Standard Z49.1, available from the American Welding Society, 2501 N. W. 7th Street, Miami, Florida 33125.

Welding fumes cannot be classified simply. The composition and quantity are both dependent on the alloy being welded and the process and electrodes used. The number of welders in a specific area, their average arc time, the amount of ventilation present in the work environment, and most important, the relationship of the welder's head with respect to the fume plume all affect the level of contaminants found within the breathing zone. When ventilation is questionable (see OSHA 29 CFR 1910.252 and ANSI Z49.1), an air sample from inside the welder's helmet or in the direct breathing zone is recommended (see AWS publication F1.1-76) and should, at a minimum, be analyzed for those materials listed in the hazardous decomposition products in Section VI.

Avoid welding in presence of chlorinated hydrocarbon vapors – Phosgene may be produced by radiant energy of arc.

Avoid welding parts with phosphate residues (anti-rust, cleaning preparations) – Phosphine may be produced.

ALWAYS WELD WITH ENOUGH VENTILATION.

OTHER HANDLING AND STORAGE CONDITIONS – Arcs and sparks during welding use could be the source of ignition of combustible materials. Prevent fires. Refer to NFPA 51 B "Cutting and Welding Processes".